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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,596	10/24/2001	Chung-Yang Huang	M-12150 US	4568
23639	7590	06/28/2005	EXAMINER	
BINGHAM, MCCUTCHEN LLP THREE EMBARCADERO CENTER 18 FLOOR SAN FRANCISCO, CA 94111-4067			THOMPSON, ANNETTE M	
			ART UNIT	PAPER NUMBER
			2825	

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/029,596

Applicant(s)

HUANG, CHUNG-YANG

Examiner

A. M. Thompson

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 15-21 and 26-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 15-21 and 26-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's election without traverse of claims 1-7, 15-21 and 26-28 in the reply filed on 03 March 2005 is acknowledged. Claims 8-14 and 22-25 are cancelled. Claims 29-35 are added. Claims 1-7, 15-21, and 26-35 are pending.

2. Prosecution of the pending elected and newly added claims now resumes under a different examiner, Examiner Thompson. Accordingly, this second non-final action on the merits is issued with new grounds of rejection, inter alia.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

4. Claims 2, 3, 5-7, 16, 17, 19-21, 26, 32-35 are objected to because of the following informalities: Pursuant to **claim 2**, at line 3, before "targets", insert - -vector generation- -. Pursuant to **claim 16**, at line 4, before "targets", insert - -vector generation- -. Pursuant to **claims 3, 17, and 31**, "the one or more nonlinear equations" and "one or more linear equations" lack sufficient antecedent basis. Pursuant to **claims 5-7, 19-21, and 33-35**, "the vector generation target" presupposes the selection of one vector generation target, but the respective independent claims, claim 1, claim 15 and claim 29, from which these claims depend, respectively recite **one or more** vector generation targets. Pursuant to **claim 26**, at line 3, change "comprises" to - -comprising- -. Pursuant to **claim 32**, at line 2, delete "means for"; at line 3, before "backtracking", insert - -means for- -. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-7 and 29-35 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Pursuant to claims 1-7 and 29-35, it is unclear how the claim limitations recited relate to a method and system for generating a test vector.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Rejection of claims 1-7, 15-21 and 26-35

8. Claims 1-7, 15-21, and 26-35 are rejected under 35 U.S.C. 102(a) as being anticipated by the C-Y Huang et al. paper (the Huang paper) entitled Assertion Checking by Combined Word-level ATPG and Modular Arithmetic Constraint-Solving Techniques.

9. Pursuant to claims 1, 15 and 29 the Huang paper discloses a method (claim 1) (page 118, col. 2, ¶ 3), computer-readable medium with executable instructions (claim 15) (page 122, col. 2, § 5, ¶ 1), and system (claim 29) (page 123, col. 1, ¶ 2) for generating a test vector for functional verification of circuits (the Abstract discloses word-level ATPG) comprising providing a representation of a circuit (page 118, col. 2, ¶

4, the HDL design), the representation comprising a control logic component and a datapath logic component (page 118, col. 2, ¶ 4) ; reading one or more vector generation targets; performing word-level ATPG justification on the control logic component to obtain a control logic solution (page 118, col. 2, ¶ 5) ; extracting one or more arithmetic functions for the datapath logic component based on the control logic solution; and solving the one or more arithmetic functions using a modular constraint solver, the modular constraint solver being based on a modular number system (see also page 119, Fig. 2; page 121, col. 1, § 4, ¶¶ 1,2).

10. Pursuant to claims 2, 16, and 30 wherein the word-level ATPG justification comprises performing word-level implication on circuit components related to the vector generation targets (page 118, col. 2, ¶ 5; page 119, §§ 2,3) .

11. Pursuant to claims 3, 17, and 31, wherein solving the one or more arithmetic functions comprises determining possible solutions for the one or more nonlinear equations; and solving the one or more linear equations using one possible solution for the one or more nonlinear equations as boundary conditions (page 121, § 4, col. 2, ¶ 1).

12. Pursuant to claims 4, 18 and 32, further comprising dependent on the outcome of solving the one or more arithmetic functions (Fig. 2 illustrates this limitation; see also § 2), backtracking to perform word-level ATPG justification on the control logic component to obtain a second control logic solution (§ 3); extracting one or more arithmetic functions for the datapath logic component based on the second control logic solution; and solving the one or more arithmetic functions using the modular constraint solver (Fig. 2, § 2).

Art Unit: 2825

13. Pursuant to claims 5-7, 19-21, and 33-35 wherein the vector generation target comprises a (claim 5) signal value (page 120, col. 1); (claim 6) a relation among a set of signals (page 120, the Registers/Flip-flop section); and (claim 7) a sequence of relations among a set of signals (page 119, § 3.1, ¶ 3).

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please reference the attached PTO-892 for a complete listing.

15. Any inquiry concerning this communication or earlier communications should be directed to Examiner A.M. Thompson whose telephone number is (571) 272-1909. The Examiner can usually be reached Monday thru Friday from 8:00 a.m. to 4:30 p.m..

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

16. Responses to this action should be mailed to the appropriate mail stop:

Mail Stop _____

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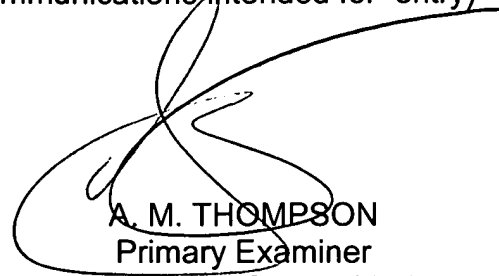
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Alexandria, VA 22313-1450

or faxed to:

Art Unit: 2825

(703) 872-9306, (for all **OFFICIAL** communications intended for entry)



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